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10/657,747	09/08/2003	Hitoshi Yamada	FUJI 20 624 (100794-00480)	1140
26304 7590 07/02/2008 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585				
EXAMINER				
DIVECTIA, KAMAL B				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/657,747

**Applicant(s)**

YAMADA ET AL.

**Examiner**

KAMAL B. DIVECHA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Action is in response to communications filed 4/18/08.

Claims 1-20 are pending in this application.

### **Response to Arguments**

Applicant's arguments filed in the communications have been fully considered but they are not persuasive.

In response filed, applicant argues in substance that:

a. Rawson, III does not disclose or suggest among other things, predicting load information of resources according to a prediction algorithm and adjusting the measuring intervals based on the measured load information and the predicted load information, as recited in claims 1, 7, 11 and 15 (remarks, pg. 3).

In response to argument [a], Examiner respectfully disagrees.

#### **Independent claim 1 recites:**

A resource load measuring method for measuring load information of resources within a network, comprising:  
measuring the load information of the resources at measuring intervals and storing the measured load information in a storage section;  
predicting the load information of the resources according to a prediction algorithm and storing the predicted load information in the storage section; and  
adjusting the measuring intervals based on the measured load information and the predicted load information stored in the storage section.

In response filed, applicant asserts:

Paragraphs [0024]-[0027] of Rawson, III only describe, however, a judgment that is made to determine whether or not a target apparatus, which is to be managed (hereinafter referred to as a "management target apparatus"), is operating in a normal manner within acceptable parameters. **Rawson, III describes changing the period of management depending on the state of the management target apparatus.** The period of management is increased with time while the management target apparatus is operating in the normal manner, and the period of

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management is decreased with time when the management target apparatus begins to operate in an abnormal manner.

However, applicant fails to recognize that the period of management is actually the measuring interval, and further fails to recognize that the change in period of measuring interval is based on the obtained state values of the target apparatus and the expected, predetermined and/or predicted state values of the target apparatus.

Rawson discloses:

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[0023] The present invention provides a mechanism by which the amount of management traffic is reduced during times when the local area network and the devices are operating in a stable manner while allowing for greater levels of management during times when it is determined that the overall system is operating in an unexpected manner. By minimizing the management traffic during times of normal operation, the likelihood of a bottleneck situation occurring is minimized and the number of monitored servers may be increased.

[0024] With the present invention, if the behavior and load on the local area network are determined to be within expected parameters, the period of management functions is increased, thereby decreasing the frequency of the monitoring activity of the metaserver 110. Thus, overhead of the system is reduced. On the other hand, when one or more of the thin servers or the local area network behaves in an unexpected manner, either by generating an alert or receiving an unexpected response to a management inquiry, the periods of the various management activities are reduced. The amount of reduction depends on the nature of the unexpected manner of operation and/or the duration of the unexpected operation.

[0025] As an example of the type of monitoring which this invention applies, consider the collection of information regarding the number of hypertext transport protocol (http) requests being completed per second by some number  $N$  of web-serving appliances. Under a particular load of inbound requests per second  $L$ , each server appliance is expected to receive approximately  $L/N$  requests per second. To ensure that this is happening, the metaserver may send to each web-serving appliance a request to transmit the number of requests per second that it is receiving. If the values returned are all sufficiently close to  $L/N$ , the metaserver can assume that at least this part of the system is operating within normal parameters. However, if some of the values are radically different from  $L/N$ , then the metaserver has detected an out-of-specification condition.

[0026] As described above with regard to the specific example provided, the metaserver sends out management messages to monitored systems and devices, such as thin servers 130, requesting that they respond with various information detailing their operational history and/or current operational status. For example, the metaserver may send a request to a thin server requesting that the thin server indicate the number of access requests received from client devices and the number of times the thin server failed to provide the requested access.

[0027] Based on this information, the metaserver may determine whether or not the thin server is operating within acceptable parameters. For example, if the number of times the thin server failed to provide the requested access exceeds a predetermined maximum acceptable threshold, the metaserver may determine that the thin server is not operating within normal parameters.

As an example, Rawson discloses that under a particular load of inbound requests per second  $L$ , **each server appliance is expected to receive approximately  $L/N$  requests per second**. To ensure that this is happening, the metaserver may send to each web-serving appliance a request to transmit the number of requests per second that it is receiving. If the values returned are all sufficiently close to  $L/N$ , the metaserver can assume that at least this part of the system is operating within normal parameters.

The  $L/N$  request is expected and/or predicted load information of the resources. The metaserver makes a determination whether the system is operating normal or not based on the received values and expected values, and depending on the outcome, the metaserver alters, changes and/or adjusts the measuring and/or monitoring interval.

In another example, Rawson discloses determining whether or not the thin server is operating within acceptable parameters based on the information received from the thin server. For example, **if the number of times the thin server failed to provide the requested access exceeds a predetermined maximum acceptable threshold**, the metaserver may determine that the thin server is not operating within normal parameters.

Based on the current operational status of the computer systems, which is obtained, calculated or determined based on the measured values and the predetermined/expected and/or predicted threshold value, the period at which the monitoring requests is sent, i.e. request to send load and status information, is varied, i.e. increased or decreased, and in other words, adjusted.

Therefore, the adjusting of the measuring intervals is based on the measured values and predicted and/or predetermined values.

However, Rawson does not explicitly disclose that the expectation, predetermination and/or prediction is according to a prediction algorithm, which as per applicant specification is exponentially weighted moving average algorithm (hereinafter EWMAA)

Levine explicitly teaches calculating an average latency using an exponentially time-weighted average of all previous measurements and the new measurements; similar function is used to calculate average packet loss in the network, e.g. col. 2 L46-65, col. 7 L9-45.

Generally, in network management, the predetermined threshold values are determined from the previous measurements may be by taking an average of the plurality of values.

In short, Levine uses the EWMAA to get the best approximation and/or prediction.

As such, mere usage of prediction algorithm such as EWMAA for calculating the predetermined maximum acceptable threshold, expected and/or predicted values renders the claimed invention obvious at least in view of Rawson and Levine.

See **KSR International Co. v. Teleflex Inc.**, 550 U.S. \_\_\_, \_\_\_, 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper “functional approach” to the determination of obviousness as laid down in *Graham*. The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit, and **MPEP 2143. I** EXEMPLARY RATIONALES:

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Exemplary rationales that may support a conclusion of obviousness include:

- (A) Combining prior art elements according to known methods to yield predictable results;
- (B) Simple substitution of one known element for another to obtain predictable results;
- (C) Use of known technique to improve similar devices (methods, or products) in the same way;
- (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) "Obvious to try" – choosing from a finite number of identified, predictable ].

b. Examiner has failed to establish a prima facie case of obviousness in failing to provide any suggestion, motivation or objective reason – other than improper hindsight from the claimed invention itself (remarks, pg. 4).

In response to argument [b], Examiner disagrees.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Levine clearly discloses that the usage of EWMAA provides a systematic methodology for predicting actual values and/or EWMAA provides a good approximation, e.g. Levine: col. 9 L4-10, col. 11 L22-28.

c. Applicants respectfully submit that claim 7 properly recites an apparatus claim (remarks, pg. 2).

In response to argument [c], Examiner disagrees.

The section of the MPEP cited by the applicant is reproduced herein:

For example, a claimed invention may be **a combination of devices** that appear to be directed to a machine and **one or more steps of the functions performed by the machine**. Such instances of mixed attributes, although potentially confusing as to which category of patentable subject matter the claim belongs, does not affect the analysis to be performed by USPTO personnel. Note that an apparatus claim with process steps is not classified as a “hybrid” claim; instead, it is simply an apparatus claim including functional limitations. See, e.g., *R.A.C.C. Indus. v. Stun-Tech, Inc.*, 178 F.3d 1309 (Fed. Cir. 1998) (unpublished).

In the instant case, the claim fails to disclose a combination of devices and/or combination of physical elements to constitute a machine or apparatus within the meaning of 35 US 101.

**For example:**

As set forth in the rejection, the body of the claim is directed towards software per se in light of applicant's specification.

In other words, the software comprising one or more computer programs can and/or is interpreted as the apparatus since the claim fails to disclose any physical elements of a machine such as memory, processor, etc.

Moreover, the specification discloses a **computer program** that causes a computer to function as the network control apparatus, e.g. specification pg. 29 lines 26-37. That is, the network control apparatus is a computer program.

Furthermore, applicant asserts that claims 7-14 recite the top-level sections of an apparatus, e.g. remarks, pg. 2. The rejection in view of the specification clearly shows that these “top-level sections” of applicants are computer programs and/or data structures.

**See MPEP 2106** for further information.

For the at least these reasons, **THE REJECTION IS MAINTAINED.**

In order to overcome the 35 USC 101 rejections, applicant is suggested to positively recite one or more physical elements of a computer system for the apparatus to constitute a machine. Such one or more physical elements can include CPU 703, storage 704, etc., as set forth in the specification pg. 28 lines 27 to pg. 29 line 25 and figure 20.

**Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 7-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**Independent claim 7 recites:**

A network control apparatus coupled within a network having resources and controlling the network, comprising:

a storage section;

a measuring section to measure load information of the resources at measuring intervals and to store the measured load information in the storage section;

a predicting section to predict the load information of the resources according to a prediction algorithm and to store the predicted load information in the storage section; and

an adjusting section to adjust the measuring intervals based on the measured load information and the predicted load information stored in the storage section.

Initially, the claim fails to fall into any of the four enumerated category of the patentable statutory subject matter as set forth above.

Although the claim appears to disclose the “apparatus”, the claim actually lacks the necessary physical articles/objects/elements/components to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter.

As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

[Descriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” Both types of “descriptive material” are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of

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technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994).

Merely claiming nonfunctional descriptive material, i.e., abstract ideas stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make the claim statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer").]

In the instant case, a storage section may represent a data structure, e.g. see applicant specification, pg. 15 lines 23-27, a measuring section is clearly a software such as SNMP management software, e.g. specification, pg. 11 lines 2-14, a predicting section is also a software and/or algorithm, see pg. 12 lines 5-15, and an adjusting section can be a computer program, i.e. instructions, pg. 14 lines 15-35, pg. 16 lines 10-14, thus directing the claim, as a whole, to be interpreted and/or implemented as a computer program and/or as a software, i.e. software per se.

Hence, the claimed subject matter fails to place the claimed invention, more specifically claims 7-14, squarely within one statutory class of invention as set forth above.

Independent claim 11 further includes "a plurality of resources". Based on the broadest reasonable interpretation, the plurality of resources may comprise data structures and/or computer codes. As such, Independent claim 11 is rejected for the same reasons as set forth in claim 7 above.

Claims 8-10 and 12-14 are rejected for the same reasons as set forth in claim 7 above.

Applicant is advised to take appropriate action.

Examiner's Note: A computer readable storage medium as in claim 15 is defined to include magnetic disks, optical disks, and/or magneto-optical disks (applicant specification, pg. 29 lines 14-34).

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rawson, III (hereinafter Rawson, US 2002/0073187 A1) in view of Levine et al. (hereinafter Levine, US 7,028,083 B2).

As per claim 1, Rawson discloses a resource load measuring method for measuring load information of resources within a network (pg. 1 [0008]), comprising:

measuring the load information of the resources at measuring intervals and storing the measured load information in a storage device (pg. 2 [0020], [0026]);

predicting the load information of the resources and storing the predicted load information (pg. 2 [0024—0027]: i.e. usage of “expected parameters” indicates the presence of expecting or predicting the information);

adjusting the measuring intervals based on the measured load information and the predicted load information stored in the storage section (pg. 1 [0008], pg. 2 [0024-0028]: i.e. varying the period based on the expected values and measured values).

However, Rawson does not disclose the process of using a prediction algorithm to predict the load information of the resources (according to applicant specification, the prediction algorithm is exponentially weighted moving average algorithm)

Levine explicitly discloses using the exponentially weighted average algorithm, i.e. a prediction algorithm, to predict the load information of the resources and store the predicted load information in a storage device (col. 2 L46-65, col. 7 L5-29, col. 9 L4-53: table 1, col. 10 L28-53).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Rawson in view of Levine (hereinafter referred as the combination) in order to predict the load information using the prediction algorithm.

One of ordinary skilled in the art would have been motivated because it would have provided a systematic methodology for predicting actual values (e.g. Levine: col. 9 L4-10, col. 11 L22-28).

As per claim 2, the combination discloses the process wherein the predicted load information is predicted based on time-varying information in the measured load information (Levine: col. 7 L5-29, col. 9 L4-53: table 1, col. 10 L28-53: i.e. prediction is based on the historical and/or current data).

As per claim 3, the combination discloses the process wherein the predicted load information is predicted based on at least one error between present measured load information and previous load information (Rawson: pg. 2 [0024-0028]; Levine: fig. 8).

As per claim 4, the combination discloses the process wherein the measuring intervals are adjusted based on at least one error between the measured load information and the predicted load information (Rawson: pg. 1 [0008], pg. 2 [0024-0028]: i.e. varying the period based on the different expected and measured values).

As per claim 5, Rawson discloses the process wherein the measuring, the predicting and the adjusting are carried out by a network control apparatus within the network (fig. 1 item #110, pg. 2 [0020], [0025-0028]), and the resources include communication nodes within the network (fig. 1 item #130, pg. 1 [0014]).

As per claim 6, Rawson discloses the process wherein the measuring, the predicting and the adjusting are carried out by a communication node within the network, in response to an instruction from a network control apparatus within the network, and the resources are provided within the communication node (fig. 1 item #110, 130, pg. 2 [0020]: a metaserver can be a specialized thin server, [0022], [0024-0028]).

As per claims 7-20, they do not teach or further define over the limitations in claims 1-6. Therefore, claims 7-20 are rejected for the same reasons as set forth in claims 1-6.

**Additional References**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Carney et al., US 6,615,161 B1: Adjusting an Interval of Polling a peripheral device in response to changes in the status and/or reliability of receiving traps.
- b. Greuel et al., US 7,003,564 B2: Customizably calculating and displaying health of a computer network.
- c. Gu et al., US 6,744,780 B1: Managing communications network: dynamically adjusting the monitoring interval.
- d. Kumar, US 6,640,268 B1: Dynamic polling mechanism: adjusting polling rate.

**Conclusion**

**Examiner's Remarks:** The teachings of the prior art shall not be restricted and/or limited to the citations by columns and line numbers, as specified in the rejection. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

In the case of amendments, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and support, for ascertaining the metes and bounds of the claimed invention.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is (571)272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kamal Divecha  
Art Unit 2151  
/John Follansbee/

Supervisory Patent Examiner, Art Unit 2151